

Demand-Driven Supply Chains - Getting It Right For True Value

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Introduction

Professionals and executives in the supply chain world strive continuously for innovations, leading practices, and new ideas that can improve how supply chains help businesses grow profitably. Because supply chains provide value to companies of all types, demand-driven value networks should be a prime objective.

“Demand-driven” is a relatively new term for an operations strategy, or business model, that is gaining momentum in the supply chain community. This paper explores this strategy and provides some guidelines for adapting it to any business with supply chains in order to create true value.

Developing a “demand-driven business” is an emerging goal of business leaders. Knowing what customers bought yesterday and what they want to buy today is not enough. Due to the increasingly global economy, shorter product cycles fueled by instantaneous information, and increasing specialized needs of global markets, the common views about supply and demand are no longer adequate.

While it is more important than ever to have near real-time information, even this is insufficient for today’s business leaders. Instead, companies must find ways to differentiate based on latent demand, unmet demand, and even emerging demand. *Why* customers buy is more important than *who* they are or *what* they buy.

Supply chains have a more important role in achieving demand-driven than ever before. The idea of shifting the focus of supply chains from “pushing products to markets” to “pulling products to sales” is not new. Operations strategies of “make to stock,” “make to order,” and “make to both” have been the descriptors of supply chains ever since Dell brought to life “make to order and deliver in three days” in the early 90s. It is common knowledge that as a company increases make and ship to order, its total costs of operations are reduced.

The markets, however, do not always work this way, at least not in any large scale for most products. Even Dell made some volume of product to stock (to forecast) and assembled to inventory for product availability. And, as offshore sourcing became the predominant operations strategy, managers had to once again rely on sales forecasts with long lead times and extended supply chains. Moreover, supply chain managers began to worry more about supply (and its risks) than about demand.

So, the term “demand-driven” has been introduced in recent times to turn thinking back toward the customer. But it also has opened up new thinking around how best to manage a supply chain that is serving a volatile market, in unprecedented levels of complexity, while dealing with long distances and lead times from end-to-end.

Chief Supply Chain Officers (CSCOs) and other senior executives across all industries must now react to volatility and unpredictable events more than ever before. Many relate that their operating plans are impacted even before they reach a steady state, that capacities are either over or under-utilized, that product inventories are either excessive or out of stock, and that flexibility is elusive no matter what they do to prepare for it. Global supply chains, especially, are at high risk, although domestic issues are just as prevalent.

CSCOs also report that they are especially concerned about supply chain innovations in the short term; about SKU complexity; and, the demand-supply issues of forecasts and supplier relationships. All these concerns add to the “keep us up at night” lists of worries.

Complexity is particularly concerning. With complicated operations, one can usually predict outcomes by knowing the starting conditions. In complex operations, however, the same starting conditions can produce different outcomes. Unintended and surprising consequences can arise from seemingly simple actions.

For example, when actual demand for a product category is less than the sales forecast, the natural action is to slow down its production and work through available inventories. But, this could change dramatically the next month and create product outages because ramping up production may require several weeks or even months in today’s complex world.

Demand forecasting is particularly affected by increasing complexity. Most forecasting models are based on assumptions that do not cooperate with complex current conditions, such as: (1) that behavioral observations are truly independent, and (2) that it is very likely that we extrapolate average responses. Neither is true in today’s complex markets; no degree of past business intelligence is adequate for predictive purposes.

Companies are facing new and unprecedented business challenges and trying to solve them with outdated tools and practices, which worked well (for some) in the past, but are not equipped to deal with the degrees of volatility, uncertainty, and complexity of today’s world. The following sections discuss demand-driven strategies and how they can be utilized to overcome these challenges.

The New Demand-Driven Operations Strategy

The new “demand-driven operations strategy” reflects accumulated knowledge from the past 20 years of trying to better balance demand and supply. As supply chain managers have dealt with new markets, new sources, and new customers, businesses have increased in complexity. Getting closer to actual customer demand has been elusive.

Six Levels of Supply Chain Excellence

As mentioned in a previous section, demand-driven is not a new concept; however, newer and better approaches to demand-driven are now available. Twelve years ago, Tompkins International’s CEO Jim Tompkins wrote the first edition of his book titled, *No Boundaries: Moving Beyond Supply Chain Management*.

In the book, Jim discusses the six (or seven) levels of progression to Supply Chain Excellence. He states that when a company is at Level 0, nothing works. Thus, the remaining six levels of Supply Chain Excellence are depicted in *Figure 1*.

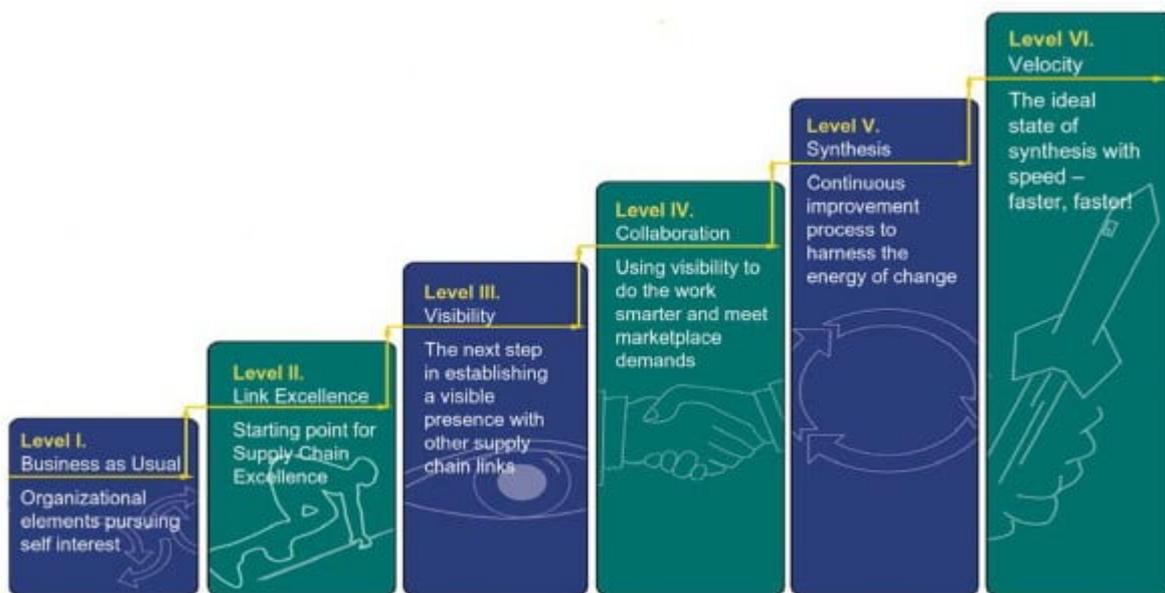


Figure 1: Six Levels of Supply Chain Excellence

Level 1: Business as Usual. At this level, a company works hard to maximize its individual functions. Organizational effectiveness is not the focus. Instead, each organizational element attempts to function well on its own. Each division/department applies its own strategy for applications used.

Level 2: Link Excellence. Now, the link eliminates and blurs any boundaries between departments and facilities, and begins a never-ending journey of continuous improvement. Its individual link must evolve to make it the most efficient, effective, responsive and holistic

that it can possibly be.

Level 3: Visibility. Links work better when they share information. Visibility establishes the groundwork for information sharing. It minimizes supply chain surprises because it provides the information links need to understand ongoing supply chain processes.

Level 4: Collaboration. Collaboration is achieved through the proper application of technology and true partnerships. Through collaboration, the supply chain can determine how best to meet the demands of the marketplace. The supply chain works as a whole to maximize customer satisfaction while minimizing inventory.

Level 5: Synthesis. Synthesis is a continuous improvement process that integrates and unifies a supply chain. Synthesis harnesses the energy of change to address a turbulent marketplace and ensure customer satisfaction. It is from synthesis that true Supply Chain Excellence is achieved because it enables a supply chain to reach unparalleled levels of performance.

Level 6: Velocity. The goal becomes accelerating the organization or supply chain to a higher velocity. Velocity creates shorter time frames, and this begets demand-driven.

Demand-driven takes customer purchase information at the point of sale (POS) and provides it in real-time to all trading partners throughout the end-to-end supply chain. This means the entire supply chain sees one set of sales numbers and responds to those numbers in real-time. The key success factor of demand-driven is the timeliness of the data reflecting real transactions.

A True Demand-Driven Business

This new strategy takes the form of new operations processes, new organizations and cultures, new mindsets, and new solution sets (processes, people, and tools/methods). One way to display this is depicted in *Figure 2*, which summarizes certain of the characteristics of a true demand-driven business. Note that most companies - even those that have launched paths toward improvements in demand planning and supplier relationship management - are not fully transformed to the right-hand side of this graph.

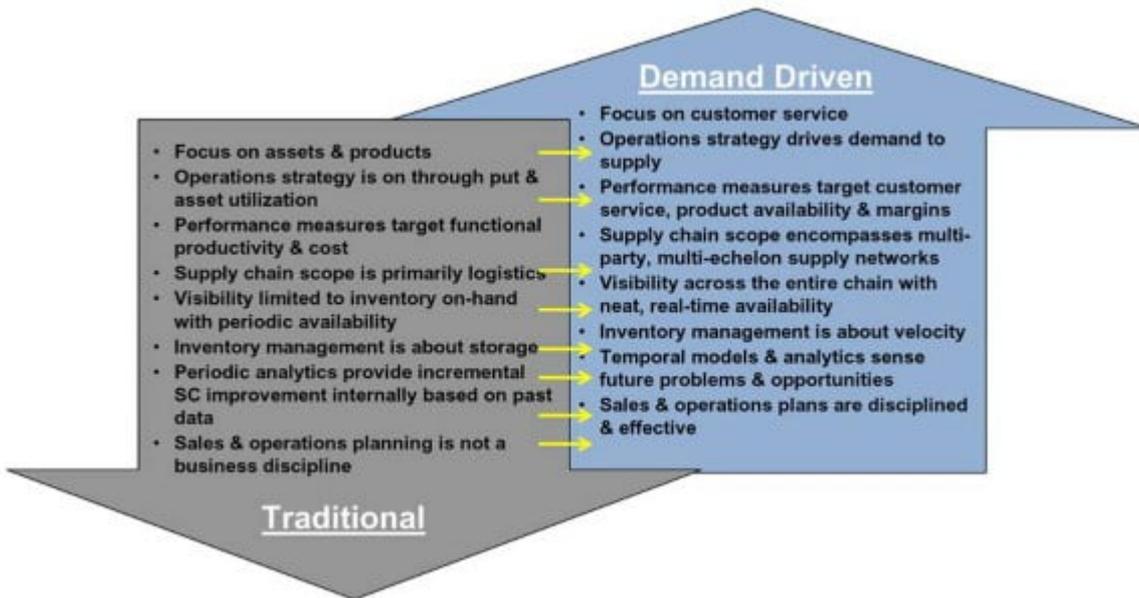


Figure 2: The Demand-Driven Progression

The Importance of Sales and Operations Planning in Demand-Driven

At the heart of the new demand-driven operations strategy is the sales and operations planning (S&OP) process, as shown in *Figure 3*. Created originally some 20 years ago in the consumer products and retail sector, it was designed to obtain collaboration around sales forecasts and supplier networks, so that flows of goods destined for sale at retail would be more efficient. Collaborative planning, forecasting, and replenishment (CPFR), efficient consumer response (ECR), and other terms were spun from this by the Voluntary Interindustry Collaboration (VICS) Association.



Figure 3: Sales & Operations Planning Process

Over this period, however, the rational promises of these programs have eluded many. Collaboration is easier to discuss than to execute, products have proliferated, and volatility and uncertainty have predominated. The traditional approaches to S&OP have largely “hit the wall” - as data timeliness, quality and availability have become limited; alignment with ever-evolving business strategies is too difficult; and moving from demand and supply balancing to profitability is a large barrier.

Moreover, a recent report from the annual survey of supply chain and logistics “masters” finds that only 46% of supply chain managers are involved in S&OP at their companies. And, further, only 15% of these are involved with suppliers. Collaboration continues to be elusive for the very profession that should be advancing and driving it.

The Demand-Driven Process

The new demand-driven process, referred to by Gartner as the “Demand-Driven Value Network (DDVN),” is based on a single sales forecast that drives the entire supply chain - from “suppliers’ suppliers to customers’ customers.” This means that *all* trading partners in the supply chain (suppliers, producers, distributors, retailers, and service providers) are operating with one single “consensus” sales forecast for the product group in question. Thus, this describes the “demand chain,” and not an individual “demand link.” It also means that the single “consensus” sales forecast is as up to date as possible to reality - i.e., knowing what is actually selling (real- time) at least daily, and even hourly.

The new Demand-Driven Supply Chain (DDSC) strategy provides more. It brings the SELL process into the supply chain world (*see the supply chain model, Figure 4*), which has been a missing element.

This allows the executive view of the end-to-end supply chain to actually start with the sale, and not at the point of delivery. This strategy - regardless of the organizational structure of the company - addresses the business processes and allows for the development of an integrated business plan (IBP) that is shared with other trading partners.



Figure 4: Tompkins Supply Chain Model

The DDSC, then, provides for one more critical success factor: It enables the S&OP plan to be a continuous, living, and scenario-based tool for the planning and execution cycles. Not only does this change the rigid, plan and act behavior (“just do it”), it also allows for near-term “what-if” scenario alternatives. These would include consideration of varied and uncontrollable factors such as economic uncertainties, consumer trends, supplier constraints, commodity price shifts, supply chain disruptions and other external effects.

The New Demand-Driven Operations

Most companies, in order to become demand-driven in the new ways, require a transformation. The transformation involves changes to operations strategies that will include its trading partners, as well as changes in practices and knowledge that supply chains should be driven by SELL and not simply by sales or purchase orders.

Throughout the past few years, Gartner has recognized this need for transformation in its “Supply Chain Top 25.” The finalists differ in their degree of vertical integration (acquisitions vs. extensive outsourcing), but all demonstrate excellent control and intelligence of the supply chain activities of product sale. The leaders are true orchestrators in that they go beyond simply adapting others’ best practices. They create new ones altogether, to rewrite the business rules that achieve differentiation.

Figure 5 illustrates the demand and supply model. The critical success factors are not the principles of demand and supply balancing, which are understood; they are careful design and execution in the company and among its trading partners.

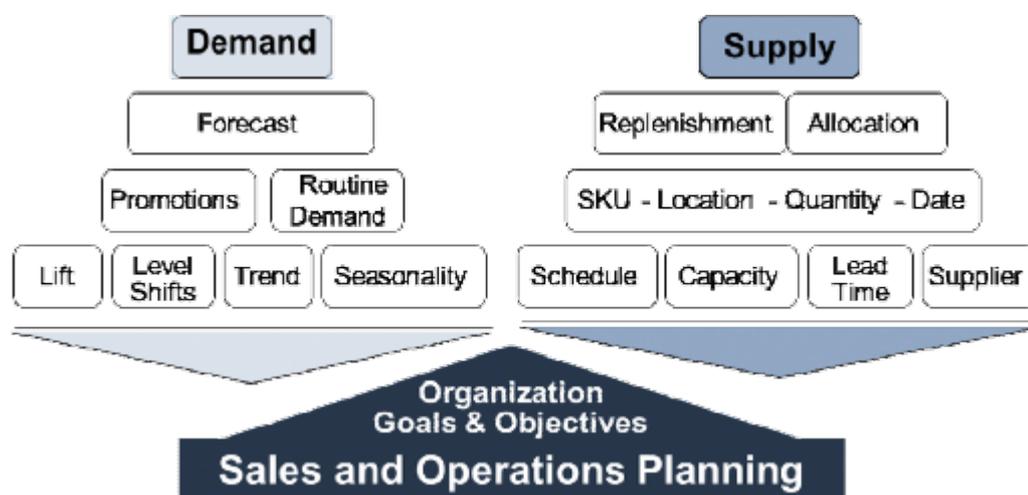


Figure 5: S&OP Demand-Supply Model

Operations strategies must, of course, be aligned solidly with the business strategies. Supply chains exist not just to flow products; rather, they can be leveraged for demand creation. The leaders (e.g., Apple, P&G, Amazon, Cisco Systems, IBM) have begun to recognize this opportunity. They have changed their operations strategies to focus heavily

on demand-driven opportunities and have transformed their processes, people, and technologies to execute in superior ways. Thus, DDSC begins with the formulation of operating strategies that focus their operations on demand, as close to 100% as practical.

The next step is to examine the supply chain processes. All six mega processes (PLAN-BUY-MAKE-MOVE-STORE-SELL) must be evaluated completely for their drivers, performance measures, and productivity. The reorientation of BUY (procurement) in recent times illustrates this need. Buying lowest delivered price is one transformation, but buying what is needed for true demand is even more important. A true DDSC includes procurement in its IBP, along with other operations in S&OP.

Process assessments are critical for new operations. Identifying what, why, who, how, when, and where, with process mapping, will get at the alignment and effectiveness of how work is done in the supply chains. The relevant example for this action is the process that addresses sales and operations – again, the S&OP. Although hundreds of businesses have initiated in some way this process, Gartner reports that some two-thirds have been unable to progress beyond the first two stages of the S&OP “maturity model.” (See Figure 6 for the stages.)



Figure 6. Stages of S&OP Maturity Model

Unless the processes are mapped, critiqued, specified, and disciplined, it is not likely that true progress will be made.

The changes in processes involve the redefining authorities, responsibilities, work flows, collaborations, and performance measures. Once redefined, these can be implemented by “process playbooks,” which are useful for people and teams to work in new ways.

The importance of new performance measures cannot be overlooked. P&G, for example, has recently announced its intention to measure “service as measured by customer” (SAMBC). This is innovative in that it will measure their services the way that each key retailer does. It is transformative in that it will require their process to adapt, and facilitate collaboration.

Of course, the new demand-driven operations require new and improved technologies to enable near real-time planning and execution. Tompkins and One Network Enterprises have formed a partnership for this purpose. One Network has enabled Del Monte, and several

other brand name customers, to make dramatic gains in operating performance (*see more on this in the next section*), by its ability to update forecasts in as few as every 15 minutes, based on actual sales.

Planned orders can then be created, netted against inventories, and operational plans updated for production, procurement, logistics, distribution, transportation, etc.

After years of research and technological advances in forecasting models and algorithms - and relatively minor gains in forecast accuracy as a result - One Network has addressed instead the complexities involved in a many-to-many, multi-echelon network of trading partners and is providing them near-real-time visibility and collaboration. One Network provides cloud technology for access to real-time data, a vital element in DDSCs. By taking advantage of the cloud-based environment, One Network allows rapid implementation in an on-demand environment.

The New Demand-Driven Performance

As mentioned earlier, by adapting the principles of demand-driven and getting the processes defined correctly, the people trained in new ways of thinking and working, and enabling with effective technology, businesses can achieve dramatic new levels of performance. The performance measures most often impacted, together with some selected actual experiences, are shown in *Figure 7*.

PERFORMANCE MEASURE	NEW OR GAIN
Customer Order Fill Rate	99+ %
Inventory Levels	Down 27%
Improved Store In-Stocks	99 %
Working Capital (Cash Conversion Cycle)	Negative
Forecast Accuracy	Up 20+ % (Item Level)
MAPE (Mean Absolute Percentage Error)	Down 20+ %
Days of Sales Inventory	17 (System)
DOS Inventories	7 (DCs)
Expedite Orders	Minor
Total Costs to Serve	Down 25%
Increased Revenues	Up 10%

Figure 7. Demand-Driven Performance Measures

In addition to the quantitative measures, there are also qualitative benefits. These include:

- **Organizational Development:** Transforming operations to demand-driven provides new ways to improve business performance - for processes, people, and culture - by

focusing all efforts on activities and metrics that matter.

- **Knowledge and Fact-based Decisions:** Basing decisions and choices on facts and intelligence produces more value than on assumptions and intuition.
- **Customer Satisfaction:** While much of this category can be measured, there are positive and valuable intangibles that result from the power of relationships.
- **Self-Assessments:** Some companies have established Centers of Excellence (COEs) that house and apply tools, methods, and scorecards to identify needs and opportunities for improvement. Demand-driven supply chains contribute to these for multiple applications.
- **Improved Scenario Planning:** Scenarios allow the rapid creation and evaluation of alternative plans, which improves the organizational ability to be agile and resilient.

Clearly, these reported performance gains are truly significant. They exceed most if not all of the incremental gains that may be derived from “point solutions,” as well as those delivered by the implementation of large-scale ERP systems.

Following A Path To Demand-Driven

How does a company get on the path to demand-driven? Unlike the planning and implementation of ERP systems, today’s proven tools and methods permit rapid planning and testing. The following simplified three-step model provides a basic outline for initiating the path to a

demand-driven organization. The details will vary based on the specific situation and unique characteristics of the supply chains.

STEP 1: Prepare the Operation for a Pilot Test. The objective in this first step is to streamline the strategy and business processes such that a pilot test can be conducted.

- Challenge the operations strategy. (Does it enable the business strategy? Does it give priority focus to demand or to supply?)
- Determine the right product category and supply chain to be tested.
- Determine the pilot test conditions – objectives, metrics and time period.

- Ready the processes and data sets for the pilot test
- Ready the solution sets. (Remember processes, people, and tools are the foundation of the company.)

STEP 2: Conduct the Pilot Test

- Operate the pilot test on true demand data and other actuals.
- Orchestrate change by designing, collaborating and co-managing with the retailer/customer and suppliers/service providers.
- Monitor the results and measure the performance of the four flows of product, cash, information, and work.

STEP 3: Roll-out to other Categories and Trading Partners

- Reformulate the new operations strategy.
- Refine the business processes based on learnings from the Pilot.
- Prioritize the categories and supply chains.
- Implement change management programs from the beginning.
- Set the right business-wide financial and service targets and performance measures.
- Integrate and scale the solution sets: processes, people, and tools.
- Provide for continuous improvement

Getting It All Right

The principles of demand-driven operations are being understood more and more, as

companies move forward with continuous improvements. But, the fact that so many companies are at an impasse with their S&OP processes suggests that the adoption, and adaptation, of leading practices is not keeping pace with new requirements and market challenges.

There are a few lessons learned that can help guide companies to move forward into advanced stages of collaboration and orchestration. Then they can achieve the dramatic performance gains reported by a few of the leaders. These are:

- **Focus on the right targets.** Store-level in-stock is one of the most critical metrics for the entire supply chain, not just for the retailer. Traditional DC-based measures hide the true value (i.e., the item is there for sale when customers want it). Other key target measures include inventory levels for working capital and cash conversion purposes. In general, these measures should be limited, allowing the organization to focus on achieving them.
- **Understand true demand-driven.** Achieve the common realization that this is, at best, a continuous business planning activity that crosses multiple planning horizons and organizational functions or groups. While the goal of alignment has not changed, the challenge lies in attaining and maintaining this alignment in today's volatile and complex environment.

The fundamental step in this journey is the understanding of what true demand-driven is

- not a forecast, not a series of consensus meetings, not a sequential and unilateral activity - but, a collaborative, consecutive, and synchronized process to enable demand response.

- **Layer and tailor the S&OP processes.** At least three levels of planning need to occur: the executive, the managerial or commercial, and the operational. Each level needs the right mission, principles, rules, practices, and discipline. This in itself may well require transformation of planning within the entire enterprise, as well as for those in the supply chain.
- **Transform the full solution set: processes, people, and tools/technologies.** Unless all three components of the work are transformed and in synch, demand-driven will not be effective, nor will the S&OP process. None of these alone can achieve true demand-driven operations. While it is often tempting to overcompensate for one or the other by hiring new people, copying a best practice process, or implementing a new technology or application, each of these alone is inadequate. Change management may well need to be the glue that brings these three components together.

- **Don't just capture sales and other operations data - use it.** Yes, DDSCs are data engines. More sales data is available earlier (near real-time); and end-to-end supply chain visibility is a powerful step forward in becoming demand-driven. But, the point is not to expand the data; it is to put the information to good use for faster and better decision making. Supply chain analytics and intelligence can be derived from more timely, comprehensive, and accurate data. This crucial point must be the focus of timely and accurate data capture.
- **Work to achieve high levels of performance throughout the entire supply chain - not just for one link.** The supply chain refers to all the trading partners in the chain, and all must enjoy benefits as well as contribute for maximum demand-driven performance.

Conclusion

Demand-driven is not a new concept, but there is a clearer focus on customer demand in real-time. It is a transformational strategy because it changes the way organizations think about the marketplace. Companies now have to consider how to replenish (and, manage promotions, markdowns, other actions) for the end-to-end supply chain with true demand.

Once an item is sold, the complete supply chain can be triggered into synchronized action. With the new DDSC, the POS transaction impacts planning and replenishment, product availability, distribution, transportation, production, and suppliers. This enables improved profitability and value creation for all the supply chain partners.

This paper has presented the latest thinking on DDSCs, their ability to foster improved S&OP processes, and the business and operations value that can be derived from transforming to a demand-driven business model. Importantly, it also shares some guidelines and lessons learned about how to do this effectively.

Keep in mind the point made earlier - that, although moving to DDSC is a transformation, the time it takes to get there is much more rapid than was experienced with ERP implementations. With the proven tools and methods, together with the experience of those who have launched the initiative, the pilot test can be planned and completed in 3-4 months. It also means that the roll-out to others can be planned and completed in months, not years. The benefits and results are well worth the resources.

Some companies have been developing and improving their S&OP processes for years; many have still not started. For those that have begun, and are among the two-thirds that Gartner depicts as being stuck in the Stage 2 maturity, there are ways to get unstuck and progress to the substantial gains shown herein. For those that have not yet started, the principles within this paper will help you guide the DDSC initiative.

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About Tompkins International

Tompkins International transforms supply chains to help create value for all organizations. For more than 35 years, Tompkins has provided end-to-end solutions on a global scale, helping clients align business and supply chain strategies through operations planning, design and implementation. The company delivers leading-edge business and supply chain solutions by optimizing the Mega Processes of PLAN-BUY-MAKE-MOVE-STORE-SELL. Tompkins supports clients in achieving profitable growth in all areas of global supply chain and market growth strategy, organization, operations, process improvement, technology implementation, material handling integration, and benchmarking and best practices. Headquartered in Raleigh, NC, USA, Tompkins has offices throughout North America and in Europe and Asia. For more information, visit www.tompkingsinc.com.